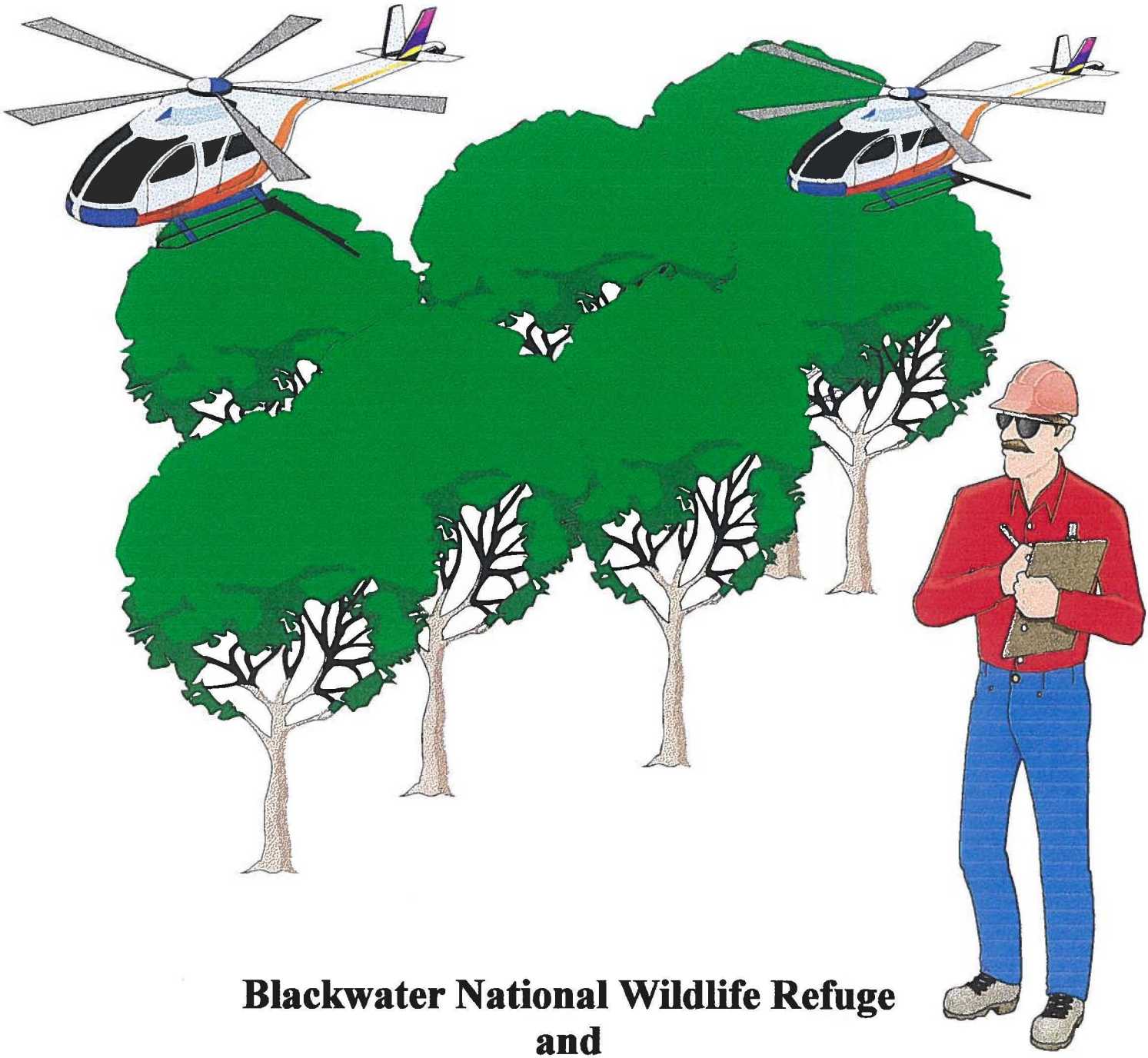
1995 Gypsy Moth Suppression Project Work Plan



Blackwater National Wildlife Refuge
and
Indian Head Naval Ordnance Station

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INTRODUCTION

The gypsy moth, *Lymantria dispar L.*, first reached defoliating levels at Blackwater National Wildlife Refuge (Blackwater NWR) and Indian Head Naval Ordnance Station (Indian Head NOS) in 1993. Defoliation acreage increased at both of these sites in 1994. Despite previous management efforts at Blackwater NWR in 1993 and 1994, and at Indian Head NOS in 1994, defoliating levels of gypsy moth still exist. Suppression projects are again planned at both sites in 1995.

In 1995, *Bacillus thuringiensis* var. *kurstaki* (*B.t.k.*) will be applied to a total of 4,520 acres. At Blackwater NWR, 1,837 acres will be treated with two applications, while 846 acres will be treated with a single application. A single application will be applied on 889 acres at Indian Head NOS.

The purpose of these suppression projects is to prevent defoliation and subsequent tree mortality as it would interfere with the forest management objectives at these sites. The management objective at Indian Head NOS is the production of valuable timber, while the management objective at Blackwater NWR is to preserve the habitat of the endangered Delmarva fox squirrel.

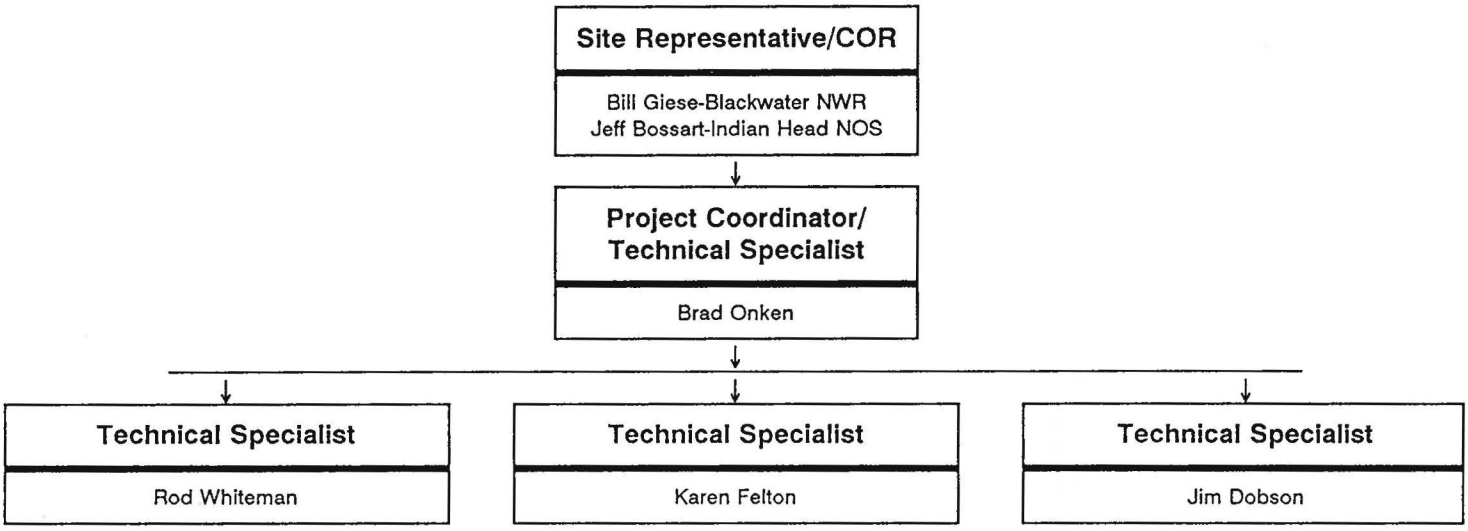
The primary treatment objective at each site is to prevent noticeable defolation (>30 percent) from occurring on more than 20 percent of the treatment area. A second objective is to reduce residual gypsy moth populations below the damage threshold of 750 egg masses per acre on at least 80 percent of the treatment area.

ORGANIZATION AND RESPONSIBILITIES

ORGANIZATION

The organization for the suppression projects at Indian Head NOS and Blackwater NWR is shown in an organizational flow chart on the next page. Each person is to report to the person directly above them with any problems or concerns.

Organizational Chart for the 1995 Gypsy Moth Suppression Projects at Blackwater NWR and Indian Head NOS



RESPONSIBILITIES

Site Representative/COR - Although the Site Representative and COR can be separate responsibilities assigned to two individuals, most often they are assigned to one person from the responsible agency of the treatment area.

The Contracting Officer Representative has the responsibility for the overall spray program. Although contract disputes may be deferred to the Contracting Officer, the COR has the authority to stop all spray activities until issues are resolved. As Site Representative, all matters dealing with the public, adjacent landowners or the press will be dealt with according to Standard Operating Procedures of the agency involved. Technical matters related to the spray project however, may be deferred to on-site Forest Service Technical Specialists if necessary.

The Site Representative or a designee must be present or immediately available during spray operations. If not on-site, the Forest Service Technical Specialist has the authority to stop all spray operations should any safety or contract concern warrant such action.

All notification of spray operations to personnel working or visiting the areas to be treated and any mitigating measures necessary to protect environmental sensitive areas is the responsibility of the Site Representative.

Spray Operations Technical Specialist(s) - The Technical Specialist(s) from the Forest Service will have the responsibility to help organize, implement and evaluate the suppression program. Upon the award of the contract by the Contracting Officer, the Technical Specialists will work directly with the contractor and COR to carry out the logistics of spray operations. These logistics include: 1) aircraft and equipment inspection, calibration and characterization; 2) mixing/loading site preparation; 3) treatment area familiarization; and spray block marking; 4) treatment timing based on larvae/foliage development and desireable weather conditions; 5) oversee operational safety practices; 6) mixing/loading record keeping; and 7) evaluation of the overall treatment effectiveness.

These activities will be carried out by several Forest Service employees but the overall responsibility will be the Project Coordinator/Technical Specialist or a designee who will report to the Site Representative/COR. The assigned Forest Service Technical Specialists are noted in the attached flow chart.

OPERATIONAL CONSIDERATIONS

INSECTICIDE RATE, NUMBER OF APPLICATIONS AND TREATMENT ACRES

B.t.k. will be applied in a single application at the rate of 36 BIUs (billion international units) on 889 acres at Indian Head NOS. At Blackwater NWR treatment will consist of spraying 846 acres in a single treatment and 1,837 acres using two applications, each at 36 BIUs per acre. The second application will be applied 4-7 days after the first application.

SPRAY BLOCK SELECTION AND LOCATION

There are 6 treatment areas at Indian Head NOS and 27 treatment areas at Blackwater NWR (Figures 1 and 2). All of these sites are valued either for timber production or wildlife habitat, or both, and are infested by gypsy moth. The boundaries of each site will be delineated on 7.5 minute topographic quadrangle maps. At the discretion of the Technical Specialist and the Contractor, yellow helium filled balloons will be used to mark the corners of the treatment blocks.

NO-FLY ZONE

A no-fly zone has been established around active bald eagle nests at both Indian Head NOS and Blackwater NWR. These no-fly zones are shown in Figures 1 and 2. Project aircraft will be prohibited from flying into this zone. Orange helium-filled balloons will be used to mark the corners of these no-fly zones.

HELISPOTS

A permanent helispot exists at Indian Head NOS (Figure 1) and will be used exclusively during the project at this site. Temporary helispots will be used at Blackwater NWR since no permanent helispots exist at this site. Likely helispots are shown in Figure 2.

CALIBRATION AND CHARACTERIZATION

The spray aircraft will be calibrated and characterized prior to the anticipated start date of the spraying.

SPRAY TIMING

The estimated start date for the spraying is May 1, $\pm$ 5 days. The spray window will extend approximately 14 days from the actual starting date which will depend upon larvae and foliage development within the treatment areas. The treatment should begin when 10-25 percent of the larvae reach the second instar and foliage expansion on the oaks range from 25 to 50 percent.

WEATHER RESTRICTIONS

Desirable weather conditions during spray operations are critical to the success of the treatment. Weather conditions will be monitored at or near the spary block by Forest Service personnel. Spray operations will be delayed or postponed when conditions are less than optimal for spray deposition.

Optimal conditions include: no inversions; wind speeds less than 10 mph and steady; temperatures between 45 and 80°F; relative humidity greater than 40 percent; and chance of rain within 6 hours of treatment is minimal.

TREATMENT MONITORING

Technical specialists from the Forest Service will be in or near the treatment areas during the time of treatment to observe spray and report deposition. When inadequate deposition is reported to the load site, the area will be considered for retreatment or the spraying operation will be suspended until weather conditions are favorable for good deposition.

The volume of the treatment will be monitored by keeping accurate aircraft load sheets. The actual amount of *B.t.k.* sprayed should be within 5 percent of expected amount (number of acres x .75).

COMMUNICATIONS

Communication between the helispot and the field crews will be conducted through portable FM radios on a pre-determined ground to ground frequency.

Communications between the helispot or field crews and the airborne spray aircraft will be conducted through AM radios on a pre-determined air to ground frequency. For safety reasons, communications should be minimal when the pilot is flying.

PESTICIDE HANDLING AND STORAGE

The contractor is responsible for handling and transporting the *B.t.k.* in a safe and judicious manner. Any unused *B.t.k.* is the responsibility of the contractor. All empty containers are to be disposed of by the contractor in accordance with the manufacturer's recommendations. All precautions listed on the label should be observed. If the *B.t.k.* is delivered in a bulk tank, the *B.t.k.* should be recirculated once before initial usage. The contractor will provide a MSDS for the insecticide used. The *B.t.k.* should be stored in a cool place out of the direct rays of the sun.

WORKING RESTRICTIONS FOR PILOTS AND OTHERS

The pilots for the projects will follow these guidelines:

Flight time will not exceed a total of eight hours per day.

Flight time shall not exceed a total of 42 hours in any six consecutive days.

Pilots accumulating 36 to 42 hours of flying in any six consecutive days shall be off duty the following full calendar day.

Within any 24-hour period, pilots shall have a minimum of ten hours off duty.

Duty includes flight time, ground duty of any kind, and standby or alert status at any location.

During any 14 consecutive days, pilots shall be off duty for two full calendar days. Days off duty need not be consecutive.

Due to the short duration of the spray window, there will be no work restriction hours on other personnel. However, safety is the highest priority and is everyone's responsibility! All safety concerns should be reported to the Project Coordinator.

RETREATMENT CONSIDERATIONS

The Site Representative/COR, after consulting with Forest Service personnel, has the option of retreating an area under the following circumstances:

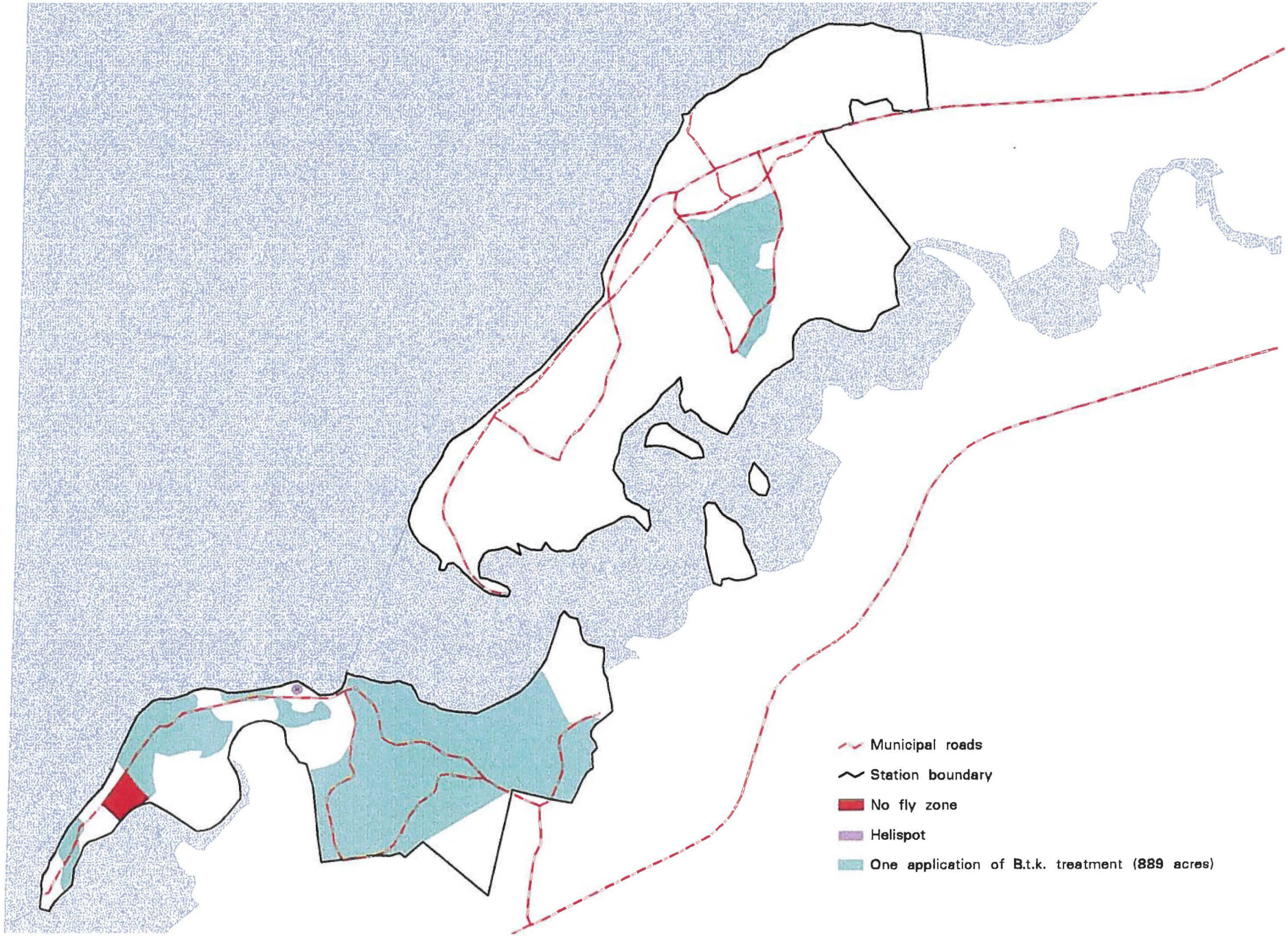
Ground observations and/or spray cards revealed an unacceptable application by the contractor due to pilot error or mechanical malfunction.

More than .5 inches of rain within 24 hours of the treatment or the intensity of the rain within 12 hours was such that washoff was likely.

POST TREATMENT EVALUATIONS

The effectiveness of aerial application of *B.t.k.* at Blackwater NWR and Indian Head NOS will be evaluated using a post-suppression aerial defoliation survey and an egg mass survey. The treatments will be considered successful at a site if noticeable defoliation occurs on less than 20 percent of the treatment area and residual gypsy moth populations are reduced below the damage threshold of 750 egg masses per acre on at least 80 percent of the treatment area.

Figure 1. -- Indian Head Naval Ordnance Station
Location of 1995 treatment areas, helispot, and no fly zone.



Blackwater - 1995

1st Treatment Sequence

Helispot #3

	Block	Acres	Gal.
Area 3	I	69	51.8
	J	61	45.8
Area 5	H	85	63.8
Area 4	G	22	16.5
Area 6	K	480	360.0
		717 acres	538 gal.

Helispot #3 — 1st Treatment
Area 3 I = 69, J = 61
Area 5 H = 85
Area 4 G = 22
Area 6 K = 480

Helispot #2

Area 2	A	52	39
	B	148	111
	C	421	315.8
	D	53	39.8
		674 acres	505.6 gal.
Area 1	E	279	209.3
	F	138	103.5
		417 acres	312.8 acres

Sub-Totals: 1808 acres
1356 gallons